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Publication date:
2016

Document Version
Publisher's PDF, also known as Version of record

Discovery of peptidic anti-myotoxins

Johanna Bjärtun[1,2], Andreas H. Laustsen[2], Andreas Munk[3], Bruno Lomonte[4], Brian Lohse[2]

[1]Department of Pharmaceutical Biosciences, Uppsala University, [2]Department of Drug Design and Pharmacology, University of Copenhagen, [3]Department of Systems Biology, Technical University of Denmark, [4]Instituto Clodomiro Picado, Universidad de Costa Rica

More than 2.5 millions envenomations and 125.000 death occur each year due to snakebite [1]. Current antivenoms consist of immunoglobulines derived from animals, and they are therefore associated with a high risk of adverse reactions in humans [2]. The use of synthetic peptidic antitoxins may lead to safer and more effective antivenoms. This research reports the discovery of peptidic antitoxins against myotoxin II from *B. asper.*

UPPSALA UNIVERSITET

Johanna Bjärtun

Department of Drug Design and Pharmacology,
Faculty of Health and Medical Science, University of Copenhagen

Department of Pharmaceutical Biosciences
Division of Pharmacology,
Faculty of Pharmacy, Uppsala University

Johanna.Bjartun.0656@student.uu.se

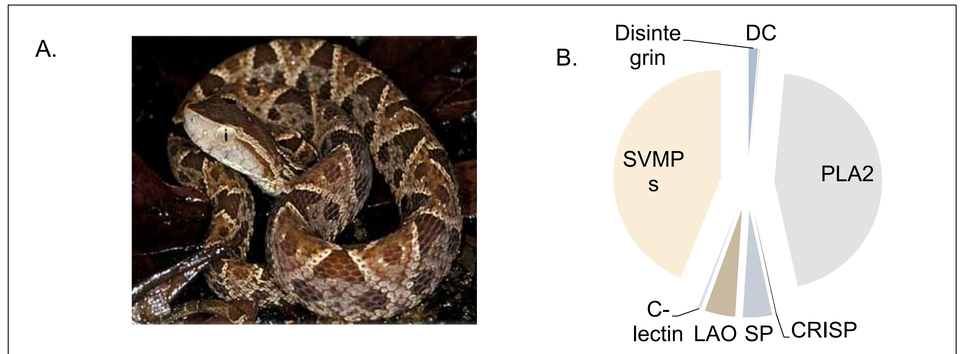

Figure 1. A) *Bothrops asper* [3]. **B)** Composition of the venom of *B. asper*. Myotoxin II is a Phospolipases A_2 (PLA_2), responsible for the myotoxic effects of the venom.

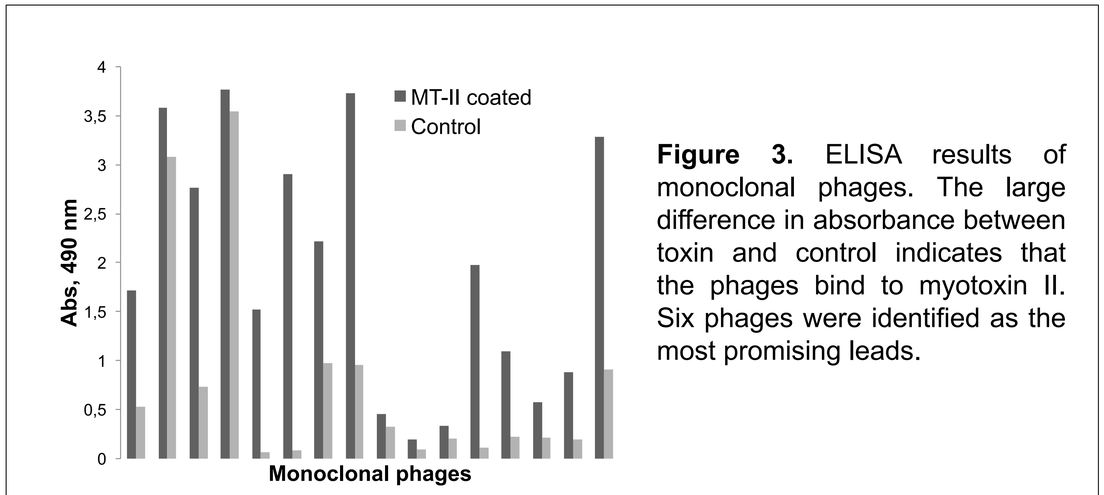

Figure 3. ELISA results of monoclonal phages. The large difference in absorbance between toxin and control indicates that the phages bind to myotoxin II. Six phages were identified as the most promising leads.

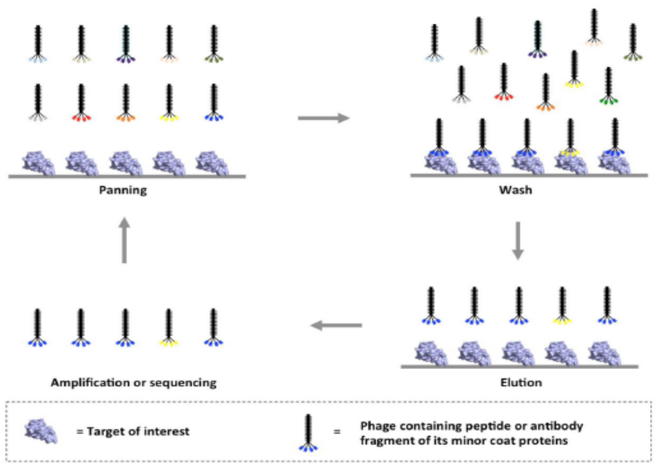

Figure 2. Phage display selection. Up to a billion different phages are tested for their ability to bind to the toxin. Unbound phages are washed away, bound phages are isolated, amplified, and sequenced [4].
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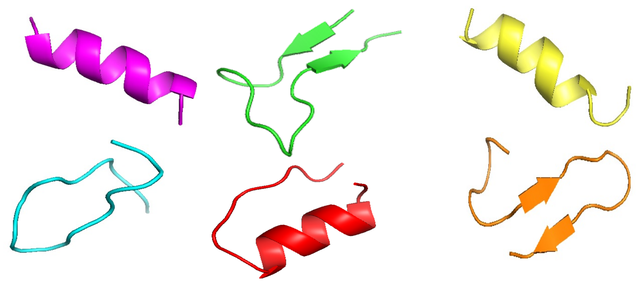

Figure 4. The DNA from the six phages were isolated and sequenced, and models of the peptides were constructed using PEP-FOLD.

Conclusion

Six peptides were discovered that showed binding to myotoxin II. Further work is required to determine binding affinity and inhibitory effect.

References

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